8.

REPORT

—OF—

CLARENCE L. VINCENT,

OF WORCESTER COUNTY,

—AND—

DR. JESSE W. DOWNEY,

OF FREDERICK COUNTY.

THE

Commissioners of Fisheries

OF MARYLAND

—FOR—

1902-1903.

BALTIMORE, MD.
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1903.

LIST OF FISH COMMISSIONERS OF MARYLAND.

Western Shore.		*Eastern Shore.*
T. B. Ferguson	1874–1875	Philip W. Downes.
T. B. Ferguson	1876–1877	Philip W. Downes.
T. B. Ferguson	1878–1879	Thomas Hughlett, Sr.
T. B. Ferguson	1880–1881	Thomas Hughlett, Sr.
T. B. Ferguson	1882–1883	Thomas Hughlett, Sr.
G. W. Delawder	1884–1885	Dr. E. W. Humphreys.
G. W. Delawder	1886–1887	Dr. E. W. Humphreys.
G. W. Delawder	1888–1889	Stephen P. Toadvine.
G. W. Delawder	1890–1891	Granville R. Rider.
Richard T. Browning	1892–1893	John S. Sudler.
Richard T. Browning	1894–1895	John S. Sudler.
John E. Gnagey	1896–1897	James C. Tawes.
A. F. George	1898–1899	John E. Sterling.
Jesse W. Downey	1900–1901	Clarence L. Vincent.
Jesse W. Downey	1902–1903	Clarence L. Vincent.

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REPORT.

To His Excellency,

Honorable John Walter Smith,

Governor of Maryland.

Sir: We beg leave to herewith submit our report as Commissioners of Fisheries for the years 1902 and 1903.

The two seasons passed since our last report have been, in some respects, the most eventful in the history of the Commission.

In our former report we called special attention to our preparations then being made to engage extensively in the propagation of white and yellow perch, as the requests for these valuable food fish from the citizens of the State have been numerous. With the object of increasing the supply of these fish we have made special efforts toward their propagation, and are pleased to report to you that we have distributed during the two years in the rivers of the State many million white and yellow perch. We firmly believe that the increase will soon be apparent to all, as we have already received reports from various sections showing that the output of 1901 was a most profitable one, many more perch having been caught in the rivers where they were deposited than for some years previous.

In the spring of 1903 the United States Fish Commission, having learned of the success with which your Commissioners had been meeting in hatching perch, sent a specialist to this State to investigate the methods we were employing in the prosecution of the work of artificial propagation. This gentleman expressed himself as much pleased with what he saw, and, as a result of his investigation, our methods have been adopted at some of the stations of the United States Fish Commission. Photographs were made of the hatching houses and the methods we use for propagation on the rivers.

The Legislature of 1901 was so impressed with the needs of your Commission that an additional appropriation was made for the purpose of enabling the Commissioner for the Western Shore to make improvements at the Station in Druid Hill Park, Baltimore, and for the special work of propagating white perch by the Commissioner for the Eastern Shore.

Shad fishing during the years 1902 and 1903 has not been what we would wish, as the fishermen on the spawning grounds were deprived of their former splendid catches by the number of fish pounds which have been located in the bay and in the mouths of the various rivers. It has been reported to us that the owners of these pounds take from them several thousand shad at a single fishing. This wholesale method of capturing shad has driven many of those who heretofore fished for a living out of business, claiming, as they do, that they cannot any longer engage in it with profit. This your Commissioners cannot help; we simply state the case as it is reported to us, and from our own observation. We do, however, recommend that legislation be enacted regulating the depth of water in which pounds be set, so that the channel of the various rivers will be left unobstructed and give shad and herring an opportunity to ascend to their natural spawning ground.

We also recommend the establishing of a shad and perch hatchery on the Patuxent river, as we believe this river is well adapted to the purpose, and eggs could be obtained there more readily than in some sections where we are now at work. It is our opinion that the hatchery at Lake Brown, Garrett County, should be abandoned, and, instead, a nursery maintained there for trout fry, holding the trout in their native waters until they are yearlings and are sufficiently hardy to bear transplanting into other waters. We have been communicated with on this subject by a large number of citizens residing in the section adjacent to Lake Brown, all of whom favor the action we have here suggested.

We also desire to express our opinion in this report as to the enforcement of local and State laws prohibiting the pollution of streams with chemicals, refuse from canning houses, sawdust and other stuff injurious to the maintenance of good fishing in our rivers, either by anglers or net fishermen. Complaints have been pouring in upon us for a year or more

that the refuse from tomato canning establishments dumped into several rivers was ruining the fishing, and the falling off in the catch dates with the locating of the canneries on the river banks.

There is no doubt that to-day the shad, herring, striped bass, white perch and other favorite fish, have more enemies to contend with than at any time in the history of the country. In the first place, there are hundreds of persons engaged in fishing to-day instead of a few persons in each locality as was the case twenty-five years ago. Then only a few haul seines were in use, no fish pounds, and men did not fish in the "wholesale" manner they do at present. The markets of Northern cities have been placed within easy reach of our now extensive fisheries by fast freight trains, and more shad were shipped out of the State of Maryland in 1903 than were caught in the State in the same length of time twenty-five years ago.

The march of commerce has been very destructive to the fish product of the State. The waters of the shad rivers, where fish ascend each year to deposit their eggs, is threshed and churned every hour in the day by all manner of propeller and side-wheel craft; the newly deposited fish eggs are churned and swished back and forth on the flats, and finally covered so deep in mud that very few are ever hatched. As a consequence the number of shad caught each year is gradually falling off, and shad would have entirely disappeared from our waters had it not been for the incessant work of artificial propagation carried on by your Commissioners of Fisheries and the United States Fish Commission. It is no longer hard to convince the citizens of our State of the value of the work done by the Commissioners of Fisheries. Education has opened the eyes of the public, and in many of the large cities the public school children are instructed in the value of artificial propagation. Small hatchries are maintained, so that the pupils may see the practical as well as the theoretical side of the subject.

The shad and herring are the most important species of fish taken in the waters of the State, and are an incentive for many men to engage in fishing. This is especially applicable to the gill net fishermen, who set their nets as soon as the run of shad begins in the spring and fish until the close of the

season, when the nets are laid aside and other occupations are followed until the next spring.

Shad are taken principally in gill nets, pound nets, seines and bow nets. On the Pocomoke river a great many bow nets are used, while on the Nanticoke drifting gill nets seem to be the favorite method of the shad fishermen. The same is true on the Choptank. Haul seines are used largely on the Susquehanna, in Cecil county and at Havre de Grace. An object lesson as to the value and extensiveness of the shad and herring fisheries of Maryland may be had almost any day during the months of April and May at Havre de Grace, where piled upon the "floats" and in the fish houses may be seen thousands of fine shad and herring fresh from the Susquehanna. A great many Baltimoreans take a day off every spring to feast their eyes on the sight. It is surely worth a visit from any citizen of the State, and one will be well repaid for the time in learning to what magnitude these fisheries have developed. Shad are shipped from Havre de Grace to all Northern cities, and when these and the local markets are glutted the fish are salted and barreled for use in winter. Herring are salted in immense numbers, and herring roe is also packed.

The Wicomico river is also an excellent shad river, and Salisbury is a very good market. The Potomac is probably next in importance to the Susquehanna.

In Kent county large catches of striped bass and white perch are made in sunken gill nets set during the winter and early spring. The striped bass—rock fish—is one of the best fish to be found in the waters of the State, but its numbers are growing sadly less. Both the State Fish Commission and the United States Fish Commission have experimented with propagating these fish, but have met with no success, because it has not been possible to obtain specimens in spawning condition.

As near as we can ascertain there were 17,000 persons engaged in the fisheries of this State during 1903, with an invested capital of $1,137,362. This is exclusive of the number of people who fish for sport.

In Worcester county, at Ocean City, a very important industry in the summer and fall months is the pound-net fishing in the ocean. This is a very expensive method of captur-

ing fish, as it requires an expenditure of thousands of dollars for piling and nets, but it is very profitable when the season is good and mild weather prevails, heavy winds often causing a total loss of poles and twine. The number of sea trout caught by the six or seven pounds located here some seasons is immense, supplying not only the people of Worcester, Wicomico, Dorchester and Talbot counties with fresh sea trout, but thousands of pounds are also placed in cold storage and kept until the supply of fresh fish is not equal to the demand. Another profitable fish caught quite extensively some seasons at Ocean City is the sturgeon, a fish which brings to the fisherman larger returns than any other. Ten to twenty years ago quite a number were taken in the Nanticoke, Choptank and other rivers of the Eastern Shore, but the capture of one now is very rare.

Your Commissioners desire to report that the number of fry hatched and deposited is given in detail under the head of statistics further on in this report.

Before closing we desire to thank the members of the Legislature of 1901 for their acknowledgment of our efforts to advance the fisheries of the State.

We are also indebted to United States Fish Commissioner Hon. George M. Bowers and his skilled assistants for valuable aid in the prosecution of our duties and assistance in the distribution of fish.

JESSE W. DOWNEY,
CLARENCE L. VINCENT,
Commissioners.

THE RESTRICTED INLAND RANGE OF SHAD AND ITS EFFECT ON NATURAL REPRODUCTION.

There is no species of fish more important to residents of the Atlantic seaboard than the shad, and none whose preservation immediately concerns a larger portion of the population. The total number of persons actively engaged in this fishery numbers about 25,000, and the catch approximates 15,000,000 fish annually. However, there are few species whose geographical range and local abundance are more easily affected by agencies of man or which require greater attention for their maintenance.

Ascent to the spawning grounds in the headwaters of rivers is necessary for shad to reproduce. For this purpose they ascend the St. John in Florida a distance approximating 375 miles; the Attamaha, a distance of 300 miles; the Edisto, 281 miles; the Santee, 272 miles; the Neuse, 300 miles, and the Delaware river a distance of 240 miles from the sea. However, these distances do not equal the extreme range in the early part of the nineteenth century. Then shad ascended the Savannah to Tallulah Falls, a distance of 384 miles, instead of 209 miles, as at present. They ran up the Pee Dee to Wilkesbarre, a distance of 451 miles, whereas the present limit on that river is Grassy Island, 242 miles from the sea. On the James river the former run was 350 miles in length, while the present limit is Bosher's dam, 120 miles. The greatest decrease exists in the Susquehanna river, in which shad formerly ascended to Binghampton, 318 miles from the mouth and 513 miles by water-course from the sea, whereas at present they do not appear to pass beyond Clark's Ferry, 84 miles from the mouth of the river.

An examination of twenty-three of the principal Atlantic coast rivers, aggregating 8,113 miles in length, show that shad formerly existed throughout 6,052 miles, or 74 per cent. of the length, whereas at present they are to be found in only 4,107 miles, a decrease of nearly 2,000 miles. This

summary comprises only the principal rivers, and if minor streams and tributaries were included, the total length from which shad have been excluded would doubtless appear more than twice as great. In much of that length shad were quite numerous, the catch in many instances exceeding the yield in the portion to which the fisheries are now confined. In the James river, according to the late Col. McDonald, the annual catch of shad in the 230 miles from which they are now excluded "was at one time far in excess of the now (1880) catch on the entire river." The present excluded length of the Susquehanna formerly yielded several hundred thousand annually. It was estimated that at the beginning of the nineteenth century the annual shad yield in the Merrimac river ranged from 500,000 to 1,000,000 in number, whereas none ascend that river at present.

This decrease in the range of shad in the rivers is the result of several agencies, the most important of which are (1) artificial dams, (2) pollution of water, (3) agricultural operations, and (4) extensive fisheries.

Most of the Atlantic coast streams having their sources above the coastal plane have been made impassable for shad at a short distance above the escarpment line by means of artificial dams built for developing water power or for navigation improvements. In this class are the Savannah, the Santee, the Cape Fear, the James, the Susquehanna, the Housatonic, the Connecticut, the Merrimac, the Kennebec and the Penobscot. Numerous attempts have been made by the erection of fishways to enable shad to pass above these obstructions; among the costly contrivances being those in the Savannah at Augusta, the Potomac at Great Falls, the Susquehanna at Clark's Ferry, the Housatonic at Birmingham, the Connecticut at Holyoke, the Merrimac at Lawrence, and the Kennebec at Augusta. And although these are modern constructions, designed by engineers of ability, familiar with the principles of hydraulics and the habits of fish, none of them appear to be successful for shad, this fish being so timid that it will not enter fishways readily used by salmon, alewives and other species. True, a few individuals may pass through some of the fishways, but the number is not sufficiently large to be of any practical value, and in a majority of instances where shad are reported above a dam

they have swam over the crest during freshets, or have passed through breaks in the obstruction.

The utility of the spawning areas below the dams has also been impaired by chemicals, sawdust, and other refuse from mills and towns on the river banks. In a number of small streams these have almost completely destroyed the spawning and feeding areas. But regulations against this practice now exist in most States.

The most important factor in reducing the inland range is the extensive fisheries near the coast. In the first half or the present century shad were caught all along the river course, every point yielding its quota for local use, and the limited demand not warranting the prosecution of the fisheries so vigorously as to cut off the "run" at points above. But the profits derived from shipping shad to populous centers resulted in a concentration of the fisheries at points near the mouths of the rivers where most convenient shipping facilities exist, resulting in certain narrow streams in practically excluding shad from the middle and upper sections where the spawning grounds are located. The effect is not so apparent as in the case of impassable dams, for the latter form absolute barriers, whereas extensive fisheries merely limit the number of fish ascending to the extreme range of the river and not the length of that range; but in many cases they affect the future abundance of the species even as much as the dams. This is particularly noticeable in those narrow streams whose fluvial characteristics extend nearly or quite to the sea, as in most of the rivers between St. Johns and the Neuse, and to some extent in the Susquehanna, the Hudson, the Connecticut, etc. In the Ogeechee, Savannah, Edisto, Pee Dee and Cape Fear, the great bulk of the catch is obtained in the extreme lower end within thirty or forty miles of the sea, and comparatively few shad ascend as far as the spawning grounds. In the Connecticut nearly all the shad are caught within twenty miles of the mouth.

In the broad estuaries tributary to the Sound of North Carolina and to Chesapeake and Delaware bays, the effect of netting is not so apparent, yet even in these waters only a small percentage of the shad ever reach the spawning grounds. Formerly the great bulk of the yield was obtained from the middle and upper sections of those rivers; at present

nearly all the catch is obtained in the lower section and in the salt water of the estuaries. The extension of the fisheries into the estuaries is of recent origin, dating only from the middle of the nineteenth century, and their development has been principally during the last twenty years. It requires large and costly apparatus to prosecute the fisheries there, and forms suitable have come into use only recently. At present about 47 per cent. of the total shad yield on the Atlantic seaboard is obtained in salt water regions, which half a century ago yielded none whatever; this in some measure compensating for the 4,000 miles of river course from which shad are now wholly excluded and the lengths from which the exclusion is partial.

It thus appears that the principal change in the shad fisheries during the last fifty years has been one of location rather than extent of the total yield, the great increase in the estuaries compensating for the decrease in the headwaters. This change in the fishing grounds results in a large portion of the fish being taken before they reach the spawning areas in fresh water, thereby preventing them from adding their quota to future supply almost as effectually as though they were excluded therefrom by means of dams or otherwise.

Access to suitable spawning grounds in sufficient numbers to compensate for loss by capture and natural causes is a physiological necessity for the maintenance of the fisheries if dependence is placed on natural reproduction. But from the foregoing it appears that the construction of dams has excluded shad from a large portion of the spawning grounds, notwithstanding the erection of fishways in those obstructions; sawdust, chemicals and other refuse and agricultural operations have greatly impaired the utility of the spawning areas even now available, and the extensive fisheries have very largely decreased the number of shad reaching those areas. These adverse agencies have reduced natural reproduction to almost an insignificant factor in the maintenance of the present fisheries and have rendered artificial propagation essential to their prosperity. During the seventies the returns of the fisheries reached a minimum; then the results of artificial propagation appeared, not only restoring the former abundance, but even increasing the catch.

The total shad yield on the Atlantic seaboard in 1880 numbered 5,162,315; in 1888 it was increased to 10,181,605; in 1896 it was further increased to 13,067,469, and in 1901 it approximated 15,000,000, 48 per cent. greater than in 1888, and nearly three times as great as in 1880. While this increased yield was preceded by an increase in the quantity of apparatus used, yet it was made possible by the greater abundance of shad due to artificial propagation. Comparing 1880 with 1901 it appears that the increase in the yield numbered 9,800,000. At twenty cents each, which is the average price paid by consumers, this represents an increase of $1,960,000 in the value, over fifty times the expenditure for shad propagation, a result probably unsurpassed in any other line of fish culture. The large number of persons employed in this fishery and the present inability of natural reproduction to maintain the supply, make it essential that no decrease be made in this important branch of fish culture.

The support of profitable shad fisheries is not the only object to be gained in maintaining the supply of shad on the coast. The relation between the different species of fish in the economy of nature is not very well understood, but sufficient is known to indicate that the valuable shore fisheries are intimately associated with the run of shad and similar species. Seventy years ago, when the run of fish up the rivers of New England, for instance, was very much greater than at present, the young later in the year descended to the sea in enormous schools, attracting the cod, haddock, and other offshore species, which were caught in abundance within a short distance of the coast. But with the depletion of shad, alewives, salmon, etc., came a corresponding diminution in the number of other fish near the coast. And it appears that any measure tending to restore the anadromous fishes to their former abundance will also improve the coast fisheries.

LARGE-MOUTHED BLACK BASS PLANTED IN MARYLAND WATERS.

This fish is becoming quite popular throughout the State. It is next to impossible to successfully obtain the eggs for artificial propagation; therefore, the only way they have been obtained is by pond-breeding. We have been able to secure from the United States Fish Commission, through the endorsement of our Senators and Members of Congress, quite a number of fingerling bass, which have been planted in numerous ponds and rivers of Maryland. From our own pond in Druid Hill Park we were able to secure in 1902 two thousand black bass fingerlings, which were distributed to the Patapsco, Potomac and Monocacy rivers.

In 1903 we were not so successful. Our pond was fished by some vandals and quite a number of our breeding fish destroyed. We succeeded, however, in securing about 1,000, which we placed in Lake Roland, Patapsco and Monocacy rivers.

The large-mouthed black bass is second only to its congener, the small-mouthed species, as a game-fish. From Canada and the Red river of the North it extends southward to Florida, Texas, and even into Mexico. In all suitable waters it is everywhere abundant, but prefers lakes, bayous and other sluggish waters. In the small lakes of the Upper Mississippi Valley it is most abundant in those of moderate or shallow depths. Some small lakes that are rather shallow, whose bottoms are chiefly mud, and whose water is warm, are found to be well suited to the straw bass, and to be entirely without the small-mouthed black bass. But small lakes of considerable depth, cool water and with bottom partly of mud and partly of sand and gravel, seem equally well adapted to both species. In the ponds, bayous, lagoons and sluggish streams of the South the straw bass is very abundant. It frequently enters brackish water along the coast, where it seems to be permanently resident.

In the North the maximum weight of the straw bass is about eight pounds. Examples of that size are rarely seen, however. The average size does not exceed three or four pounds, though examples weighing five or six pounds are not at all rare. In the warm waters of the South, particularly in Florida, where the temperature is equable and food abundant, this fish attains a much greater size. Dr. Henshall gives the maximum weight at twelve to fourteen pounds, he himself having seen examples of those weights.

The straw bass under favorable surroundings grows very rapidly. The conditions favorable for rapid and large growth are abundant food and waters of warm or moderate temperature and wide extent. The species are very productive. In May, 1892, the United States Fish Commission placed in one of the rearing ponds at Washington fifteen adult large-mouthed black bass, seven or eight of which were females. These fish spawned in June; and at Thanksgiving time, when the young were removed from the pond, there were taken out, by actual count, over 37,000 young, each three to four inches long, and 500 each weighing about one-half pound. These fish had received abundant food, but the 500 larger ones had doubtless eaten many smaller ones of their own kind.

This fish has received many vernacular names, among which may be mentioned large-mouthed black bass, straw bass, green bass, bayou bass, slough bass, lake bass, moss bass, grass bass, marsh bass, Oswego bass, trout, green trout, welchman, chub, and many others more or less absurd. The most distinctive and expressive name is doubtless "large-mouthed black bass," the only objection to which is its length. For many reasons "straw bass" for this species and "black bass" for the small-mouthed species are excellent names.

The relative merits of the two species as game fishes have been much discussed. This depends upon many factors, as the character of the water with regard to extent, depth, temperature and presence of vegetation, character of bottom, food, season, time of day, personality of the particular fish and many others. Dr. Henshall regards them as of equal gameness. Our own experience leads us to believe that, where the two species are found in the same water, the small-mouthed is superior in all those qualities which go together to make a game fish.

The straw bass is, however, an equally good fighter in some portions of its range, and is worthy the highest respect of all who go a-fishing.

This bass varies greatly in color and proportional measurements in different waters. There need be no difficulty, however, in identifying any specimen belonging to the species. From the small-mouthed black bass, the only species with which it might be confused, the large-mouthed black bass can always be told by its having only ten or eleven rows of scales on the cheek.

YELLOW PERCH MUCH MORE ESTEEMED THAN FORMERLY.

It is not surprising that there is such demand for yellow perch fry when it is known that they are sure to live and grow rapidly. The yellow perch was entirely unknown to the St. Martin's river, Worcester County, until last fall. In the spring of 1902 the Maryland Fish Commission ascertained that no yellow perch had ever been taken in the St. Martin's, and thought this the place to give them a fair trial. The following fall fishermen caught quite a number of them four to five inches in length, and this spring quite a number of them were taken large enough for market. While we do not consider it nearly so good a fish as the white perch, it sells well in the winter, and is so prolific as to make it a most valuable fish.

Dr. Barton W. Everman, of the United States Fish Commission, says of the yellow perch: "As a pan fish, we do not know of any better among the fresh-water fishes. We have experimented with the yellow perch and several other species, including both species of black bass, the blue-gill, wall-eyed pike and rock bass, eating each for several days in succession, and found the yellow perch the sweetest and most delicious of them all. One does not tire of it so soon as of the other kinds. Several other persons who tried the same experiment reached the same conclusion. In most parts of its range it is highly esteemed, and in many places it is of very considerable commercial importance. In the Great Lakes, the Potomac river and the small lakes in the Upper Mississippi Valley large quantities are taken, which always find a ready sale.

As a game fish the yellow perch can be commended chiefly on account of the fact that anybody can catch it. It can be taken with hook and line any month in the year and with any sort of bait—grasshoppers, angle-worms, grubs, small minnows, pieces of mussel or pieces of fish—and it will even rise, and freely, too, on occasion to the artificial fly. We have

taken it "skittering," and also on the trolling spoon. It is easily taken through the ice in winter, when small minnows are the best bait, as they are perhaps at other times. The yellow perch is not a great fighter. Its small size precludes that possibility, but it bites well, and a two-pounder, or even half that size, is a fish well worth one's while to take. If it be angled for in deep water (say 25 to 40 feet), in water that is cold and pure, and with light tackle, it will be found able to make a fight quite enough to please any except the most blase of anglers.

One yellow perch in a Fish Commission aquarium at Washington deposited a string of eggs seven feet four inches long, four inches wide at one end and two at the other. After being fertilized this string weighed two pounds nine ounces, while the weight of the fish before the eggs were discharged was only one pound eight ounces. The eggs are very small, measuring only eighteenth of an inch in diameter, and requiring 28,000 to the quart.

BROOK AND RAINBOW TROUT.

It is unnecessary to go into accurate description of this well-known game fish, "the speckled beauty of the mountain streams of Western Maryland."

More fry have been distributed by this Commission in the past two years than ever before in its history. Not a single county has been overlooked and all streams suitable to growth of these fish have been restocked. We have had in a majority of this distribution excellent results, but this can be readily improved upon. We would suggest that a nursery be established at Lake Brown, to which point all the fry hatched at Druid Hill Park can be shipped and then raised to yearlings, from where they can be distributed to the natural trout streams of the various counties.

Mr. James Gittings, of Baltimore city, writes us: "The trout fry you sent me I planted in a pond on my place and have reared them until they are now six months old and will average three inches in length. I shall now release them in a stream on my place, believing I shall get better results than had I released the fry, which I did not think able to care for themselves."

Dr. E. H. Bartlett, of Garrett County, writes us: "For more than forty years an angler for speckled beauties in the heart of the Alleganies, I know from personal intercourse your Commission has supplied the streams of this county with more trout fry than ever before in its history, but your results are not what they should be. You should rear your trout until they are fingerlings, when they will be better able to protect themselves from their enemies—snakes, frogs, lizards, &c. I should recommend the establishment of a nursery at Lake Brown."

Ex-State Senator R. T. Browning, of Garrett County, writes us in the same vein, and this seems to be the consensus of opinion of every one in this region. Abandon Lake

Brown as a hatchery, and at a nominal expense, say $500, it can be converted into a nursery. To this opinion your Commissioners concur in every respect.

We distributed to the natural trout streams of Garrett, Allegany, Washington, Frederick, Montgomery, Carroll, Howard and Baltimore counties, and to private individuals for stocking purposes in 1902, 1,500,000 brook trout and 25,000 rainbow trout.

In 1903 distribution was made to same counties of 1,000,000 brook trout and 50,000 rainbow trout.

STATISTICS.

PERCH FRY DISTRIBUTED BY FISH COMMISSIONER FOR THE WESTERN SHORE, 1902.

Severn river	5,000,000
Patapsco river	5,000,000
Patuxent river	5,000,000
Magothy river	5,000,000
Gunpowder river	2,500,000
Back river	2,500,000
	25,000,000

SHAD FRY DISTRIBUTED BY FISH COMMISSIONER FOR THE WESTERN SHORE, 1902.

Patapsco river	5,000,000
Patuxent river	10,000,000
Back river	2,500,000
Middle river	2,500,000
	20,000,000

SHAD STRIPPED AT TUCKAHOE STATION FROM APRIL 11 TO MAY 13, 1902.

1902.		No. Stripped.	Fry Obtained.
April	11	2	60,000
"	14	2	60,000
"	15	2	60,000
"	17	13	390,000
"	18	11	330,000
"	19	4	120,000
"	21	13	390,000
"	22	11	330,000
"	23	34	1,020,000
"	24	25	750,000
"	25	50	1,500,000
"	26	10	300,000
"	28	24	720,000
"	29	40	1,200,000
"	30	6	180,000
May	1	75	2,250,000
"	3	17	510,000
"	5	39	1,170,000
"	6	25	750,000
"	7	23	690,000
"	8	38	1,140,000
"	9	10	300,000
"	10	20	600,000
"	12	87	2,610,000
"	13	47	1,410,000
		628	18,840,000

1902.	Where Deposited.	
April	17—Big Blackwater river, Beaver dam, Dorchester County	500,000
May	2—Horseshoe Bend, Caroline County	500,000
"	2—Greensborough, Choptank river, Caroline County	500,000
"	3—Wye river, at Wye Mills, Talbot County	500,000
"	3—Miles river, Eureka Mills, Talbot County	1,000,000
"	4—Tred Avon river, at Peachblossom, Talbot County	1,000,000
"	5—Sassafras river, at Fox Hole, Kent County	1,000,000
"	5—Bohemia river, Bohemian Mills, Kent County	1,000,000
"	6—Transquakin river, Nabb's Bridge, Dorchester County	1,000,000
"	6—Chickamacomico river, at Drawbridge, Dorchester County	1,000,000
"	10—Chester river, near Chestertown, Kent County	1,000,000
	Distributed at hatching station	3,560,000
		12,560,000

YELLOW PERCH STRIPPED AT TUCKAHOE STATION FROM MARCH 16 TO 28, 1902.

		No. Stripped.	Fry Obtained.
March	19	200	8,000,000
"	20	300	12,000,000
"	21	500	20,000,000
"	22	500	20,000,000
"	24	800	32,000,000
"	25	200	8,000,000
"	26	500	20,000,000
"	27	450	18,000,000
"	28	350	14,000,000
		3,800	152,000,000

WHITE PERCH STRIPPED.

		No. Stripped.	Fry Obtained.
March	24	33	1,320,000
"	25	27	1,080,000
"	26	29	1,160,000
"	27	37	1,480,000
"	28	34	1,360,000
		160	6,400,000

WHERE DEPOSITED.

April	5—Corsica river, Queen Anne's County, near Centreville	1,000,000
"	5—Wye river, at Wye Mills, Talbot County	1,000,000
"	6—Little Blackwater river, at Maple Dam Bridge, Dorchester County	1,000,000
"	7—Tred Avon river, at Tan Yard Bridge, Talbot County	1,000,009
"	7—Miles river, at Eureka Mills, Talbot County	1,000,000
"	8—Delivered to J. W. Downey	8,000,000
"	9—Northeast river, near Northeast, Cecil County	2,000,000
"	9—Elk river, near Elkton, Cecil County	2,000,000
"	10—Chester river, near Millington, Queen Anne's County	2,000,000
"	11—Sassafras river, at Fox Hole, Kent County	2,000,000
"	11—Bohemia river, at Bohemian Mills, Kent County	2,000,000
"	12—Choptank river, at Denton, Caroline County	2,000,000
"	12—Watts' Branch, tributary Choptank river, Caroline County	2,000,000
"	13—Horseshoe Bend, Choptank river, Caroline County	2,000,000
"	14—Delivered to J. W. Downey	12,000,000
"	16—Lloyd's Branch, tributary Choptank river, Talbot County	2,000,000
	Distributed at the hatching station during the season	62,600,000
		105,600,000

THOMAS HUGHLETT, *Deputy.*

YELLOW PERCH STRIPPED AT NANTICOKE STATION FROM APRIL 1 TO APRIL 10, 1902..

		No. Stripped.	Fry Obtained.
April	1	50	1,750,000
"	2	50	1,750,000
"	3	30	1,050,000
"	4	50	1,750,000
"	5	100	3,500,000
"	7	200	7,000,000
"	10	50	1,750,000
		530	18,550,000

WHERE DEPOSITED.

April	7—Nanticoke river, at Riverton	1,750,000
"	8—Nanticoke river, at Twiford's Landing	1,750,000
"	12—Wicomico river, at Salisbury	1,050,000
"	12—Wicomico river, at Shad Point	1,750,000
"	14—Nanticoke river, at Sharptown	3,500,000
"	15—St. Martin's river	7,000,000
"	17—St. Martin's river	1,750,000
		18,550,000

WESLEY T. ENGLISH, *Deputy.*

WHITE PERCH STRIPPED AT NANTICOKE STATION FROM APRIL 1 TO APRIL 24, 1902

		No. Stripped.	Fry Obtained.
April	1	25	8,750,000
"	8	100	3,500,000
"	9	50	1,750,000
"	11	50	1,750,000
"	14	50	1,750,000
"	15	18	630,000
"	16	20	700,000
"	17	15	525,000
"	18	30	1,050,000
"	22	22	770,000
"	24	50	1,750,000
		430	15,050,000

WHERE DEPOSITED.

April	7—Nanticoke river, Walnut Landing	875,000
"	15—Nanticoke river, Riverton	3,500,000
"	16—Nanticoke river, Sharptown	1,750,000
"	18—Wicomico river, Quantico Wharf	1,750,000
"	20—Nanticoke river, Riverton	1,750,000
"	21—Nanticoke river, Sharptown,	630,000
"	21—Nanticoke river, Conley's Point	700,000
"	22—Nanticoke river, Barren Creek	525,000
"	22—Lewis' Wharf	1,050,000
"	26—Nanticoke river, Vienna	770,000
"	29—Nanticoke river, Riverton	1,750,000
		15,050,000

WESLEY T. ENGLISH, *Deputy*.

SHAD STRIPPED AT NANTICOKE STATION FROM APRIL 24 TO MAY 10, 1902.

	No. Stripped.	Fry Obtained.
April 24	6	210,000
" 25	12	420,000
" 26	17	595,000
" 29	5	175,000
May 1	3	105,000
" 3	10	350,000
" 8	2	70,000
" 10	1	35,000
	56	1,960,000

WHERE DEPOSITED.

April 29	—Nanticoke river, at Riverton	210,000
" 30	—Nanticoke river, at Sharptown	420,000
May 1	—Marshy Hope, Walnut Landing	595,000
" 2	—Nanticoke river, at Vienna	175,000
" 6	—Nanticoke river, at Sharptown	105,000
" 8	—Barren Creek	350,000
" 13	—Nanticoke river, Conley's Point	70,000
" 15	—Nanticoke river, Conley's Point	35,000
		1,960,000

WESLEY T. ENGLISH, *Deputy*.

SHAD STRIPPED AT SALISBURY HATCHING STATION FROM APRIL 16 TO MAY 17, 1902.

		No. Stripped.	Fry Obtained.
April	16	6	180,000
"	17	4	120,000
"	18	7	210,000
"	19	13	390,000
"	22	8	240,000
"	23	7	210,000
"	24	4	120,000
"	25	6	180,000
"	26	9	270,000
"	29	10	300,000
"	30	6	180,000
May	1	3	90,000
"	2	10	300,000
"	3	12	360,000
"	6	9	270,000
"	7	7	210,000
"	8	2	60,000
"	9	2	60,000
"	10	13	390,000
"	13	4	120,000
"	14	2	60,000
"	15	7	210,000
"	16	6	180,000
"	17	6	180,000
		160	4,890,000

WHERE DEPOSITED.

April	26—Pocomoke river	500,000
"	29—Great Annamessex river	600,000
May	3—Snow Hill	500,000
"	5—Wicomico river	800,000
"	9—Eastern Branch, Wicomico river	300,000
"	10—Western Branch, Wicomico river	540,000
"	12—Pocomoke river	350,000
"	15—High Banks, Wicomico river	200,000
"	18—Sharp's Point, Wicomico river	500,000
"	19—Wicomico river	300,000
		4,890,000

W. F. CALLOWAY, *Deputy.*

WHITE PERCH STRIPPED AT BISHOPVILLE HATCHING STATION FROM APRIL 12 TO MAY 8, 1902.

	No. Stripped.	Fry Obtained.
April 12	6	275,000
" 14	6	275,000
" 15	24	1,000,000
" 16	3	140,000
" 17	9	400,000
" 18	12	500,000
" 23	9	400,000
" 24	15	700,000
" 26	18	800,000
" 28	24	1,000,000
" 30	12	600,000
May 1	24	1,000,000
" 3	36	1,600,000
" 5	18	800,000
" 6	8	350,000
" 7	7	275,000
" 8	3	100,000
	234	10,815,000

WHERE DEPOSITED.

April 16—St. Martin's river	275,000
" 17—Showell creek	275,000
" 18—St. Martin's river	1,000,000
" 19—Perkins' creek	140,000
" 21—Herring creek	400,000
" 26—Taylor's creek	500,000
" 27—Showell creek	400,000
" 29—St. Martin's river	700,000
May 1—Taylor's creek	800,000
" 2—St. Martin's river	100,000
" 3—Perkins' Point	600,000
" 4—White's creek and Showell creek	1,000,000
" 5—Trappe creek and St. Martin's river	1,600,000
" 9—Taylor's creek and Herring creek	800,000
" 10—St. Martin's river	350,000
" 11—St. Martin's river	275,000
" 12—St. Martin's river	100,000
	10,815,000

HENRY T. BELL, *Deputy.*

SHAD STRIPPED AT NANTICOKE STATION FROM APRIL 16 TO MAY 7, 1902.

	No. Stripped.	Fry Obtained.
April 16	2	60,000
" 17	4	120,000
" 18	5	150,000
" 20	6	180,000
" 21	7	210,000
" 22	3	90,000
" 23	6	180,000
" 24	2	60,000
" 25	4	120,000
" 27	4	120,000
" 28	7	210,000
" 29	8	240,000
" 30	7	210,000
May 2	4	120,000
" 4	10	300,000
" 5	9	270,000
" 7	2	60,000
	90	2,700,000

WHERE DEPOSITED.

April 22—Conley's Point, Nanticoke river	60,000
" 23—Riverton	120,000
" 24—Marshy Hope river,	150,000
" 26—Lewi's Wharf, Nanticoke river	180,000
" 27—Sharptown	210,000
" 28—Riverton	90,000
" 29—Mardela Springs, Barren Creek	180,000
" 30—Conley's Point, Nanticoke river	60,000
May 2—Walnut Landing, Nanticoke river	120,000
" 3—Sycamore Landing, Barren Creek	120,000
" 4—Sharptown	210,000
" 5—Vienna, Nanticoke river	240,000
" 6—Riverton	210,000
" 8—Twiford's Landing	120,000
" 10—Brook View, Marshy Hope river	300,000
" 11—Cedar Landing, Barren Creek	270,000
" 13—Riverton	60,000
	2,700,000

WESLEY T. ENGLISH, *Deputy.*

PERCH FRY DISTRIBUTED BY FISH COMMISSIONER FOR THE WESTERN SHORE, 1903.

Severn river	5,000,000
Patapsco river	5,000,000
Patuxent river	5,000,000
Magothy river	2,500,000
Gunpowder river	5,000,000
Back river	2,500,000
	25,000,000

SHAD FRY DISTRIBUTED BY FISH COMMISSIONER FOR THE WESTERN SHORE, 1903.

Severn river	2,500,000
Patapsco river	10,000,000
Patuxent river	10,000,000
Gunpowder river	2,500,000
Back river	2,500,000
	26,500,000

SHAD STRIPPED AT TUCKAHOE HATCHING STATION FROM APRIL 6 TO MAY 13, 1903.

		No. Stripped.	Fry Obtained.
April	6	2	70,000
"	8	2	70,000
"	9	2	70,000
"	10	3	105,000
"	11	2	70,000
"	14	2	70,000
"	15	3	105,000
"	16	2	70,000
"	20	4	140,000
"	21	5	175,000
"	22	8	280,000
"	23	10	350,000
"	24	12	420,000
"	25	7	245,000
"	27	5	175,000
"	28	14	490,000
"	29	5	175,000
"	30	8	280,000
May	1	10	350,000
"	4	15	525,000
"	5	13	455,000
"	6	23	805,000
"	7	19	665,000
"	8	13	455,000
"	9	8	245,000
"	11	17	595,000
"	12	15	525,000
"	13	19	665,000
		248	8,680,000

	Where Deposited.	
April	29—At Hatching Station	600,000
"	29—Tred Avon river, at Tan Yard Bridge, Talbot county	300,000
"	29—Miles river, Eureka Mills, Talbot county	300,000
May	1—Transquakin river, Nabb's Branch, Dorchester county	300,000
"	1—Chickamacomico river, Drawbridge, Dorchester county	300,000
"	5—Northeast river, near Northeast, Cecil county	300,000
"	5—Elk river, Red Mills, Cecil county	300,000
"	7—Bohemia river, Murphy's Mills, Kent county	300,000
"	7—Sassafras river, Fox Hole, Kent county	300,000
"	8—Little Blackwater river, at Maple Dam, Dorchester county	300,000
"	8—Big Blackwater river, Beaver Dam Bridge, Dorchester county	300,000
"	12—Corsica river, near Centreville, Queen Anne's county	300,000
"	12—Choptank river, Greensborough, Caroline county.	300,000
"	13—Chester river, near Millington, Kent county	300,000
"	14—Hatching Station	700,000
"	14—Choptank river, Horseshoe Bend, Caroline county	300,000
"	15—Hatching Station	200,000
		5,700,000

YELLOW PERCH STRIPPED AT TUCKAHOE STATION FROM MARCH 17 TO 31, 1903.

	No. Stripped.	Fry Obtained.
March 17	500	20,000,000
" 20	400	16,000,000
" 25	300	12,000,000
" 27	375	15,000,000
" 30	225	9,000,000
" 31	185	7,400,000
	1985	79,400,000

WHITE PERCH.

	No. Stripped.	Fry Obtained.
March 26	33	132,000
" 27	40	160,000
April 2	27	108,000
" 3	75	300,000
	175	700,000

WHERE DEPOSITED.

March 27—Little Blackwater river, Maple Dam Bridge, Dorchester county	1,000,000
" 27—Big Blackwater river, Maple Dam Bridge, Dorchester county	1,000,000
April 3—Northeast river, near Northeast, Cecil county	1,000,000
" 3—Elk river, Red Mills, Cecil county	1,000,000
" 3—Wye River, at Wye Mills, Talbot county	1,000,000
" 4—Chester river, near Millington, Kent county	2,000,000
" 4—Bohemia river, at Murphy's Mills, Kent county	1,000,000
" 4—Sassafras river, at Fox Hole, Kent county	1,000,000
" 4—Hatching Station, Tuckahoe river	4,000,000
" 5—Tuckahoe river, between Talbot and Caroline counties	3,000,000
March 31—Dr. R. Hopkins Smith, Baltimore	1,000,000
" 31—Dr. Jesse W. Downey, Western Shore Fish Commissioner	16,000,000
April 5—Transquakin river, at Nabb's Branch, Dorchester county	1,000,000
" 5—Chickamacomico river, Dorchester county, Drawbridge	1,000,000
" 6—Tred Avon river, at Tan Yard Bridge, Talbot county	1,000,000
" 6—Miles river, at Eureka Mills, Talbot county	1,000,000
" 7—Chester river, at or near Chestertown, Kent county	2,000,000
" 9—Dr. Jesse W. Downey, Western Shore Fish Commissioner	10,000,000
" 9—Corsica river, near Centreville, Queen Anne's county	1,000,000
" 9—Choptank river, at Greensborough	1,000,000
" 9—Choptank river, at Horse Shoe Bend	1,000,000
	52,000,000

YELLOW PERCH SHIPPED AT NANTICOKE STATION FROM MARCH 16, 1903, TO MARCH 25, 1903.

	No. Stripped.	Fry Obtained.
March 16	50	1,500,000
" 18	25	750,000
" 19	50	1,500,000
" 20	100	1,500,000
" 21	75	2,250,000
" 23	40	1,200,000
" 25	75	2,250,000
	415	12,450,000

WHERE DEPOSITED.

March 21—Sharptown and St. Martin's river	1,500,000
" 23—Sycamore Landing, Barren Creek	750,000
" 24—Marshy Hope river	1,500,000
" 25—Salisbury	3,000,000
" 26—Chickamacomico	2,250,000
" 28—Nanticoke river, at Riverton	1,200,000
" 30—Quantico Wharf, Wicomico river	2,250,000
	12,450,900

WESLEY T. ENGLISH, *Deputy*.

WHITE PERCH STRIPPED AT NANTICOKE STATION FROM MARCH 26, 1903, TO APRIL 18, 1903.

	No. Stripped.	Fry Obtained.
March 26	20	600,000
" 27	50	1,500,000
" 30	100	3,000,000
" 31	75	2,250,000
April 2	50	1,500,000
" 3	45	1,350,000
" 4	47	1,410,000
" 6	20	600,000
" 7	25	750,000
" 8	50	1,500,000
" 9	25	750,000
" 10	75	2,250,000
" 11	25	750,000
" 13	50	1,500,000
" 15	115	3,450,000
" 16	10	300,000
" 18	6	180,000
	883	26,490,000

WHERE DEPOSITED.

March 31—Conley's Point, Nanticoke river	600,000
" 31—Riverton	1,500,000
April 4—Walnut Landing	3,000,000
" 5—Conley's Point, Nanticoke river	2,250,000
" 7—Cedar Landing	1,500,000
" 8—Mardela Springs, Barren Creek	1,350,000
" 9—Nanticoke river	1,410,000
" 12—Twiford's Landing	600,000
" 13—Galestown	750,000
" 13—Athloo Wharf, Nanticoke river	1,500,000
" 14—Vienna, Nanticoke river	750,000
" 15—Twiford's Landing	2,250,000
" 16—Lewis' Wharf, Nanticoke river	750,000
" 18—Plum creek, Nanticoke river	1,500,000
" 19—Green Hill Wharf, Nanticoke river	2,850,000
" 20—Riverton	3,450,000
" 21—Vienna, Nanticoke river	300,000
" 23—Plum creek, Nanticoke river	180,000
	26,490,000

WESLEY T. ENGLISH, *Deputy*.

WHITE PERCH STRIPPED AT BISHOPVILLE HATCHING STATION FROM APRIL 20 TO MAY 12, 1903.

	No. Stripped.	Fry Obtained.
April 20	13	650,000
" 21	2	50,000
" 22	8	400,000
" 23	3	75,000
" 24	3	75,000
" 27	20	1,000,000
" 28	12	600,000
" 29	16	800,000
" 30	22	1,100,000
May 1	5	225,00
" 2	23	1,250,000
" 4	5	150,000
" 5	11	550,000
" 6	5	250,000
" 7	6	300,000
" 8	1	50,000
" 9	1	50,000
	147	7,275,000

WHERE DEPOSITED.

April 24—St. Martin's river and tributaries	600,000
" 25—St. Martin's river and tributaries	40,000
" 26—St. Martin's river and tributaries	300,000
" 27—St. Martin's river and tributaries	70,000
" 28—St. Martin's river and tributaries	70,000
" 30—St. Martin's river and tributaries	900,000
May 1—St. Martin's river and tributaries	550,000
" 2—St. Martin's river and tributaries	750,000
" 3—Showell's river and tributaries	600,000
" 4—Showell's river and tributaries	300,000
" 5—Showell's river and tributaries	100,000
" 7—St. Martin's river and tributaries	270,000
" 8—St. Martin's river and tributaries	800,000
" 9—St. Martin's river and tributaries	600,000
" 10—St. Martin's river and tributaries	925,000
" 11—St. Martin's river and tributaries	150,000
" 12—St. Martin's river and tributaries	450,000
	7,475,000

HENRY T. BELL, *Deputy.*

SHAD STRIPPED AT SALISBURY HATCHING STATION FROM APRIL 10 TO MAY 10, 1903.

	No. Stripped.	Fry Obtained.
April 10	2	60,000
" 15	7	210,000
" 16	6	150,000
" 17	4	120,000
" 18	3	60,000
" 21	7	210,000
" 22	7	210,000
" 23	4	90,000
" 24	7	210,000
" 25	4	120,000
" 29	4	120,000
" 30	2	60,000
May 1	4	120,000
" 2	12	360,000
" 4	3	150,000
" 5	10	300,000
" 6	2	60,000
" 7	2	60,000
" 8	10	300,000
" 10	7	210,000
	112	3,180,000

WHERE DEPOSITED.

April 21—In Wicomico river, at Shad Point	60,000
" 25—In Pocomoke river, at Snow Hill	450,000
" 25—In Pocomoke river, at Pocomoke City	450,000
" 28—In Wicomico river, at Sharp's Point	150,000
" 30—In Wicomico river, at High Banks	200,000
May 1—In Wicomico river, at Riverside	125,000
" 7—In St. Martin's river, at Bishops	500,000
" 11—In Wicomico river, at River View	100,000
" 13—In Pocomoke river, at Snow Hill	400,000
" 14—In Pocomoke river, at Pocomoke City	500,000
" 16—In Wicomico river, at Shad Point	545,000
	3,480,000

W. F. CALLAWAY, *Deputy*.

FROM UNITED STATES FISH COMMISSION, 1903.

SHAD.

To Western Shore Commissioner	128,000

RAINBOW TROUT.

To Commissioner Western Shore	50,000

BLACK BASS.

Back Creek, Elkton	400
St. Martin's river	1,000
Wicomico river	1,000
White's Lake, Pocomoke City	800
Miles Creek, Easton	150
Choptank river, Greensboro'	1,000
Mill Creek, Snow Hill	200
Linganore Creek	200
Monocacy river	200
Transaquakin river	800

RECAPITULATION OF SHAD HATCHING OPERATIONS IN THE STATE OF MARYLAND FROM 1875 TO 1903, INCLUSIVE.

Date.	Shad Stripped.	Eggs Obtained.	Number Hatched.
1875	605	11,690,000	9,315,550
1876	.....	9,000,000	4,622,000
1877	1,284	10,584,000	8,444,300
1878	.....	12,730,000	8,285,000
1879	2,067	20,355,000	16,062,000
1880	3,576	34,104,000	30,608,000
1881	1,071	11,060,000	8,860,000
1882	1,279	12,220,000	11,080,000
1883	2,584	23,420,000	17,640,000
1884	.....	.....	.....
1885	1,236	13,105,000	10,791,000
1886	.....	.....	.....
1887	606	15,050,000	12,665,000
1888	.....	.....	.....
1889	1,766	59,975,000	52,735,000
1890	1,157	28,925,000	22,265,000
1891	1,143	35,825,000	26,340,000
1892	1,231	30,775,000	22,265,000
1893	2,207	53,175,000	37,825,000
1894	2,089	52,225,000	40,075,600
1895	2,599	64,975,000	45,260,000
1896	501	15,030,000	11,975,500
1897	2,084	62,520,000	42,354,000
1898-99	.....	90,000,000	85,435,000
1900-1901	.....	99,000,000	92,450,000
1902-1903	.....	95,000,000	87,050,000

Date.	Locality Deposited.	Number Fry Deposited
1875—By State in Maryland waters		4,340,000
	By United States Commission in Potomac river	4,975,000
1876—In Maryland waters		2,724,500
	In other localities	1,897,500
1877—By State in Maryland waters		7,319,300
	Turned over to United States Fish Commission	1,125,000
1878—In Potomac river		1,175,000
	In Susquehanna river	5,105,000
	In other waters of Maryland	2,005,000
1879—In Maryland waters		7,757,000
	In Pennsylvania and other waters, by U. S. Fish Commission	8,305,000
1880—In Maryland waters		23,498,000
	In other waters	7,110,000

Date.	Locality Deposited.	Number Fry Deposited.
1881—	In Maryland waters	8,363,000
1882—	In Maryland waters	11,080,000
1883—		17,640,000
1884—		.....
1885—		10,791,000
1886—		.....
1887—	*In Western Shore waters	8,200,000
	In Eastern Shore waters	12,665,000
1888—		.....
1889—		52,735,000
1890—		22,265,000
1891—	In Eastern Shore waters	26,340,000
	*In Western Shore waters	31,730,000
1892—	*In Western Shore waters	26,500,000
	In Eastern Shore waters	22,265,000
1893—	In Eastern Shore waters	37,825,000
	*In Western Shore waters	12,500,000
1894—	In Eastern Shore waters	40,072,000
	*In Western Shore waters	2,150,000
1895—	In Eastern Shore waters	45,260,000
	*In Western Shore waters	1,450,000
1896—	In Eastern Shore waters	9,878,000
	In Western Shore waters	2,097,500
1897—	In Eastern Shore waters	37,404,000
	In Western Shore waters	495,000
1898—	In Western Shore waters	8,075,000
	In Eastern Shore waters	30,680,000
1899—	In Western Shore waters	13,300,000
	In Eastern Shore waters	33,380,000
1900—	In Eastern Shore waters	16,460,000
	In Western Shore waters	25,000,000
1901—	In Eastern Shore waters	38,990,000
	In Western Shore waters	12,000,000
1902—	In Eastern Shore waters	25,690,000
	In Western Shore waters	20,000,000
1903—	In Eastern Shore waters	14,860,000
	In Western Shore waters	26,500,000

FRY HATCHED AND DISTRIBUTED BY STATE COMMISSION DURING 1902 AND 1903.

Shad	87,050,000
White Perch	116,930,000
Yellow Perch	262,400,000
Rainbow Trout	75,000
Brook Trout	2,500,000
Black Bass	3,000

PRESS COMMENT.

From the Baltimore American:

Next to the oyster industry the shad bring more money to the fisheries than any other product of the rivers and bays of Maryland. Many have bewailed the fact that shad are not so plentiful as they have been in years gone by, but this is a mistake. Just as many are caught each year as ever before, but the man at the mouth of the various rivers with his fish pounds is the heaviest catcher. Aside from this, 20 years ago there were not so many persons engaged in fishing for a living as there are today, and there were not so many destructive devices for the capture of the shad.

The shad passes most of its life in the briny deep, only coming up our rivers for the purpose of spawning, and it is during these spring migrations, when the temperature of the river is from 56 to 66 degrees, that it is possible for the fisherman to capture them.

From the Wicomico News:

Deputy Fish Commissioner Wesley T. English, who has charge of the Sharptown fish hatching station, brought to Salisbury this week two million white perch fry and placed them in the Wicomico river at the steamboat wharf.

The hatching of perch by the Maryland Fish Commission is one of the most important branches of the business, and one that will be of great value to the fishermen of the State. The only difficulty the Fish Commission is having is getting the roe, owing to the limited supply of perch in many waters of the State. Several years ago perch were abundant in the waters of the State, but they have been caught by the millions in pound nets until the supply is well nigh exhausted. The Fish Commission is now laboring hard to increase the supply by artificial propagation, and this season many million perch fry have been deposited in the rivers of this State.

THOUSANDS CAUGHT.

From the Baltimore Sun.

One fisherman at Hooper's Island last weeek caught 3,800 shad in one pound net in one night, and another something over 4,000.

List of Fish and Game Commissioners of the United States and Canada.

U. S. COMMISSION OF FISH AND FISHERIES, WASHINGTON, D. C.

Commissioner, George M. Bowers.

ALASKA.

Hon. James M. Shoup, Juneau.

DOMINION OF CANADA.

A. T. Dunn, St. John, New Brunswick.
L. B. Knight, St. John, New Brunswick.
D. G. Smith, Chatham, New Brunswick.
Charles Barber, Winnipeg, Manitoba.

ARIZONA.

E. A. Sticker, Flagstaff.
W. L. Pinney, Phoenix.
Jean Allison, Jerome.

CALIFORNIA.

H. W. Keller, Santa Monica.
W. W. Van Arsdale, San Francisco.
W. E. Gerber, Sacramento.
Charles A. Vogelsang, "Chief Deputy," San Francisco.

COLORADO.

Charles W. Harris, Denver.
T. J. Holland, Denver.

CONNECTICUT.

George T. Matthewson, Enfield.
Robert G. Pike, Middletown.
E. Hart Geer, Lyme.

DELAWARE.

J. Thomas Lowe, Little Creek.

FLORIDA.

John G. Ruge, Appalachicola.
John Y. Detwiler, New Smyrna.

GEORGIA.

A. T. Dallis, La Grange.

IDAHO.

T. W. Bartley, Moscow.

ILLINOIS.

Nat H. Cohen, Urbana.
S. P. Bartlett, Quincy.
Adolph Gartz, Chicago.
A. J. Lovejoy, Roscoe.

INDIANA.

Z. T. Sweeney, Columbus.

IOWA.

George A. Lincoln, Cedar Rapids.

KANSAS.

J. W. Hughey, Wellington.

MAINE.

L. T. Carleton, Winthrop.
Henry O. Stanley, Dixfield.
E. E. Ring, Orono.

MARYLAND.

Fish Commissioners:
C. L. Vincent, Snow Hill.
Jesse W. Downey, Newmarket.
Game Warden:
John W. Avirett, Cumberland.

MASSACHUSETTS.

Joseph W. Collins, Boston.
Edward A. Brackett, Winchester.
John W. Delano, Marion.

MICHIGAN.

Freeman B. Dickerson, Detroit.
Charles D. Joslyn, Detroit.
George M. Brown, Saginaw.
Grant M. Morse, Portland.

MINNESOTA.

Uri L. Lamprey, St. Paul.
W. P. Hill, Fairmont.
D. W. Meeker, Moorhead.
H. G. Smith, Winona.
Sam. F. Fullerton, St. Paul.

MISSOURI.

Frank P. Yenawine, St. Joseph.
J. M. Shepler, Milan.
Richard Porter, Paris.
George J. Champman, St. Louis.
J. H. Zollinger, Boonville.
A. J. D. Burford, Burfordville.

MONTANA.

W. F. Scott, Helena.

NEBRASKA.

Ezra P. Savage, Lincoln.
George B. Simpkins, Lincoln.
W. J. O'Brien, South Bend.
George L. Carter, North Platte.

NEW HAMPSHIRE.

Nathaniel Wentworth, Hudson Center.
Charles B. Clarke, Concord.
Merrill Shurtleff, Lancaster.

NEW JERSEY.

William A. Halsey, Newark.
Benjamin P. Morris, Long Branch.
Richard T. Miller, Camden.

NEW YORK.

Timothy L. Woodruff, Brooklyn.
D. C. Middleton, Watertown.
Charles H. Babcock, Rochester.

NORTH CAROLINA.

S. L. Patterson, Raleigh.
T. K. Bruner, Raleigh.
B. W. Kilgore, Raleigh.
H. H. Brimley, Raleigh.

OHIO.

J. L. Rodgers, Columbus.
Paul North, Cleveland.
Duff W. Greene, Dayton.
Thomas B. Baxton, Cincinnati.
Edwin M. Kennedy, McConnellsville.
Geo. C. Blankner, Columbus.
J. C. Porterfield, Columbus.

OKLAHOMA TERRITORY.

J. A. Gould, El Reno.

OREGON.

T. T. Geer, Salem.
F. I. Dunbar, Salem.
Charles S. Moore, Salem.
H. G. Van Dusen, Astoria.
H. A. Webster, Clackamas.
L. P. W. Quimby, Portland.

PENNSYLVANIA.

Fish Commissioners.

S. B. Stillwell, Scranton.
John Hamberger, Erie.
Henry C. Demuth, Lancaster.
James W. Correll, Easton
William E. Meehan, Philadelphia.
Henry C. Cox, Wellsboro.

Game Commissioners.

Colman K. Sober, Lewisburg.
William M. Kennedy, Allegheny.
Charles B. Penrose, Philadelphia.
J. O. H. Denny, Ligonier.
James H. Worden, Harrisburg.
William Heywood Myers, Williamsport.

RHODE ISLAND.

Fish Commissioners.

Henry T. Root, Providence.
William P. Morton, Johnston.
J. M. K. Southwick, Newport.
Charles W. Willard, Westerly.
Adelbert Roberts, Woonsocket.
Albert David Mead, Providence.
William H. Boardman, Central Falls.

Game Commissioners.

Fenver H. Peckham, Jr., Providence.
Walter R. Stiness, Warwick.
Edwin R. Lewis, Westerly.
William H. Thayer, Bristol.
Alexander O'D. Taylor, Newport.
John H. Flanagan, Secretary, Providence.

TEXAS.

J. P. Kibbe, Port Lavaca.

UTAH.

John Sharp, Salt Lake City.

VERMONT.

Henry G. Thomas, Stowe.
Edward A. Davis, Bethel.
Charles C. Gilmore, Swanton.

VIRGINIA.

John W. Boudoin, Bloxom.
George B. Keezell, Keezleton.
Henry M. Tyler, Richmond.
Robert J. Camp, Franklin.
Seth F. Miller, Riverside.

WASHINGTON.

Timothy Kershaw, Whatcom.

WEST VIRGINIA.

E. F. Smith, Hinton.

WISCONSIN.

Edwin E. Bryant, Madison.
E. A. Birge, Madison.
Calvert Spensley, Mineral Point.
James J. Hogan, La Crosse.
Henry D. Smith, Appleton.
Currie G. Bell, Bayfield.
William J. Starr, Eau Claire.
James Nevin, Madison.

WYOMING.

D. C. Nowlin, Big Piney.